UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

MONTHLY REPORT OF THE OFFICES OF FOREST EXPERIMENT STATIONS AND DENDROLOGY

SEP 1924

GOVERNMENT PRINTING OFFICE

RS
Reports
Monthly

MONTHLY REPORT
OFFICES OF FOREST EXPERIMENT STATIONS AND DENDROLOGY
September, 1924

Foreword

In the course of the past year a number of reports have been submitted for publication. Most of these have been very good and showed the results of careful and painstaking effort on the part of the author. Some of the manuscripts showed negative results which are often just as valuable as positive ones, for they indicate to others the pathway that is to be avoided in similar work. Every path of scientific endeavor is strewn thick with these bones of "dead work," useful only as a means of discovering what cannot be done, or as leading up to what alone is valuable to know. Such "dead work" may never be mentioned except in passing reference, yet, with how sure a step may the worker advance who is absolutely sure of not straying into a cul-de-sac.

One of the most important safeguards against the blind alley or against repeating uselessly the work of others is the use of bibliographies, for they are the beacons that prevent straying from the path. But it is quite evident that there are manuscripts prepared in final form and sent in for publication which show that previous work has not been considered and that they have covered the fields of other workers without consulting their work or knowing what has been done before. Recently a reviewer of a published bibliography had this to say:

> "The handmaiden of all modern research is bibliography, and like the domestic variety it can range from the heights of the superlative 'treasure' to the slatternly depths of inefficiency. At its best the service it gives is incalculable, and even at its worst it is capable of some small resistance. Good research work can only be built upon the foundations laid by previous workers, and without the aid of bibliography the student is lost. He cannot know where to begin his investigations and can but grope blindly, conscious only of what is immediately to hand and ignorant of all round him and all that has gone before. Without bibliographical aid his search for references is inevitably imperfect and the results of his investigations will reflect these imperfections."

As the stations develop, there is a great need also for the development of a bibliography covering the various phases of the work of the stations. It should not be forgotten, however, that the Service library affords a place where much information on forest work can be secured.

As the need develops, bibliographies are being prepared and will be available to the stations. These, however, cannot be as complete or as detailed as those which can and should be developed by the worker in special fields.

FOREST EXPERIMENT STATIONS
Washington

September in Washington found the Branch of Research fairly well deserted. Mr. Clapp was continuing his western trip and spent the larger portion of the month in District 2, where with Weidman and Bates he visited the Black Hills, and later accompanied Bates on a tour through the Rocky Mountain Region, visiting the various sample plots. From District 2 he went to District 4 and then to 5, where he took up with Show the work in the California District. He plans on returning to Washington through District 3 and the Southern and Appalachian Stations.

Bruce visited the Northeastern Station for two weeks during the middle of September and discussed with the members of the Station staff the work in growth and yields, particularly as applied to the spruce study.

An announcement was made of the Silviculturist examination, and preparations were made to interest as many men as possible in this examination. The examination follows in general the lines of the previous one called, and undoubtedly the register will remain intact for at least one or two years after the present vacancies are filled.

The machine tabulator is finally at work and a large number of cards have already been punched in connection with studies initiated in Washington. One of the first jobs undertaken was that of the analysis of stumpage prices, on which were devoted about two-thirds of the time of the section during the month. Approximately 20 per cent of the time of the division has also been spent on the analysis of the western yellow pine volume tables, 10 per cent in handling accounts. Other activities included work on the southern pine growth study, and the analysis of some statistical data for the Office of Operation. In this division now are two card punchers under the supervision of Mrs. Haupt, who operates the larger machines. It is interesting to note that in these stumpage price analyses in less than a month's time as much progress has been made by the card machine work as would have been done by a foce of eight people working consistently for an estimated period of approximately a year.

In the Section of Forest Measurements the southern pine growth study continues to be an engrossing line of work and over half of the time of the section has been devoted to this study. Rechecking of the southern white cedar study occupied 21 per cent of the time, while other work included the stumpage price study and the western yellow pine volume table work. There still remains a considerable amount of work on the

southern yellow pine growth study due to rechecking of field measurements and in a more accurate compilation of the material collected. It appears that still some additional field data also are necessary.

Miss Stabler, from the Section of Computing, has gone to the Appalachian Station to assist them in their work for a period of about six weeks.

In the Office of Forest Experiment Stations there has been an addition through the transfer of Miss Ruby from the Madison Laboratory to Washington.

In connection with the report to the Bureau of the Budget, the following division of work for the fiscal year 1924 shows for the principal lines of activity of the experiment stations the funds expended upon the various lines of work:

Activity	Estimated F. Y. 1925	Fiscal year 1924
Forest Investigations	$14,800	$13,000
Dendrological Studies	7,600	5,600
Forestation Studies	13,600	10,800
Computing	15,900	13,600
Protection	48,000	32,000
Tree Studies	19,500	13,000
Farm forestry	4,600	3,600
Forest influences	3,500	2,500
Forest management	73,200	54,000
Volume, growth and yield	30,000	21,000
Naval stores	18,710	3,700

APPALACHIAN FOREST EXPERIMENT STATION

General

The revision and consolidation of the public requirements and desirable forestry practice reports for the Southern Appalachian region was begun by Frothingham. He also prepared a tentative draft of a classification of the forest types, a report on which is due this winter from a committee of the Southern Appalachian Section of the Society of American Foresters. There is urgent need for such a classification which will be neither too detailed for common use nor too general for investigative purposes.

Frothingham and Korstian, in company with Supervisor Rhoades, inspected two areas in the Bent Creek division of the Pisgah National Forest, with reference to their availability as field experimental centers accessible from Asheville.

Fall plans in connection with the proposed expansion of the Champion Fibre Company's nursery at Canton and the Station's activities there were discussed by Korstian and W. J. Damtoft, forester for the company. Experiments on the control of weeds and of damping off will be started there this fall. These will be based upon recommendations of the Bureau of Plant Industry.

As a means of keeping the State foresters, national forest supervisors, and other foresters of the region in touch with the station's work, the Station's monthly report for August was sent to them in mimeographed form. It is hoped that this can be continued from month to month. The Station's annual report and program for the current year was also distributed.

On September 18 Frothingham addressed the Asheville Rotary Club on forestry and the work and plans of the Station.

The Station is fortunate in receiving the services of Miss E. B. Stabler, who has been temporarily assigned from the Washington office to assist in the computations on various current projects.

Among the visitors in September were Professor and Mrs. J. G. Lee of the Louisiana State University at Baton Rouge, and Professor G. A. Garratt of the University of the South, Sewanee, Tenn.

Oak study (TS-12)

Reieke and Eaton, who worked with McCarthy on the oak study in Tennessee and Virginia, secured a series of sample plots on the Natural Bridge National Forest and continued the work south from Lynchburg through Virginia and North Carolina to Asheville. Eaton returned to Athens on September 14 to resume his studies in the Georgia State School of Forestry.

McCarthy joined Field Assistant Wentworth on the Shenandoah National Forest late in August and secured a number of plots in this section of Virginia. They then worked several days in Maryland on land belonging to the Whitaker Iron Company near Principio Furnace, Maryland. When Wentworth returned to Pennsylvania to continue his college work, three men were supplied by the Forestry Department of Maryland to continue work on the oak study. Fifty plots in second-growth oak and taper measurements on 135 felled trees were obtained on the Whitaker tract of 8,000 acres. This excellent opportunity to secure records of even-aged, second-growth oak stands was afforded by charcoal wood operations which have been carried on periodically since the furnace was first established in 1722. Stands ranging from 30 to 86 years old were found in extensive tracts. These are even-aged, well stocked, partly of sprout origin, and have not suffered severely from fire except for parts of the forest burned during the past three years.

As in the case of stands at Principio Furnace, the best even-aged stands found in Virginia resulted from clear cutting for wood, chiefly for charcoal production. Furnaces were common through Virginia and Maryland several decades ago and a few "coaled" areas exist in north-eastern Tennessee and northwestern North Carolina. These stands offer a good criterion of what may be expected from similar stands which are now being cut comparatively clean.

In most instances even-aged, second-growth stands have slowed down materially in growth rate because of overstocking and the necessity for crowding out some members of the stand. Thinnings made after 30 years would have been beneficial.

One white oak stand found near Kimberling Springs, Bland County, Virginia, contained 166 trees which reached the dominant height of 76-80 feet in 64 years. These ranged in diameter from 6 to 16 inches. On a plot of 1¼ acres the stand had at one time been very dense as was shown by the 121 standing dead trees 3 to 8 inches in diameter. In another part of the same stand white oak reached a height of 91 feet in the same period.

The field work of this season indicates that white oak is slower in growth than black, northern red, southern red, and scarlet oaks and will endure more shade than any of these with the exception of northern red oak. It seems probable that yields of chestnut oak on medium good sites will be low in stands over 50 years of age. Its early rapid growth rate apparently cannot be sustained.

Through the courtesy of Mr. Besley, State Forester of Maryland, about 1,000 taper measurements on second-growth oak trees were furnished the Station.

The oak tables obtained during the current season will supply the greater part of the yield data needed for the preparation of the forth-coming bulletin, but additional measurements of cut trees will probably

be needed for satisfactory volume tables in second growth. Active work on this project has been closed for the season to allow of the completion of other projects.

Study of Grazing Damage (Pa-1)

Haasis and Reineke made an inspection of the Curtis Creek sample plots established in the spring of 1922. There has been only a very small amount of grazing in this creek during the past year. On the whole, the tagged sprouts and seedlings seem to be making steady but slow growth. There are a few current losses from various causes, drought being, perhaps, as important as any. Weeds are becoming very rank and tall. It was found that on one of the quadrats outside of the fence the tags had been meddled with, apparently by small boys. Many of the tags and tag wires were missing and a couple of tags were found on the wrong plants. The working plan for this project was revised during the month.

Biltmore Thinnings (Mt-1)

Reineke and Field Assistant Eaton repainted the numbers and breast-height marks on the white pine trees of Sample Plots 1a, 1b and 1c.

Southern White Cedar Study (TS-193)

Korstian, Reineke, and Miss Stabler have spent considerable time on the computations for the southern white cedar bulletin.

FREMONT EXPERIMENT STATION

September Activities

The first half of September was spent by Bates in company with Assistant Forester Clapp examining sample plots in Wyoming and Colorado, after which Mr. Clapp spent three days in the Colorado Springs office going over various matters of policy, and particularly the lodgepole pine seed report. The conclusion was reached that this report should be revised before publication with a view to shorten it somewhat.

The latter half of the month has been spent largely at the Station on soil analyses and the supervision of improvement work. It was necessary also for Bates to take about 5 days annual leave to attend to personal matters.

At the Station Roeser's largest items were the transpiration tests, complete counts and measurements on all the early lodgepole pine plantings, and the mapping and measuring of cutting areas on the Station forest.

October Plans

The technical work in October will be largely confined to the cutting data for the Station forest and to preparation for the transpiration test in 1925 which is to be conducted on such a scale as to require large volumes of soil of several kinds which have to be imported. It is also expected, but not certain, that yellow pine cones will be available for extraction tests by natural and artificial methods.

Several items of improvement must be undertaken in spite of the paucity of funds, including the completion of alterations in the office roof, plastering repairs to Roeser's dwelling and another step toward the completion of the Director's dwelling. Because of the difficulty of disposing of rain-water around the office, some sidewalks and gutters must also be built. Later, possibly not until November, all of the roofs must be painted.

LAKE STATES FOREST EXPERIMENT STATION

During September rather definite steps were marked in the progress of the principal active projects of the Station. Mitchell completed the analysis of the fire statistics for Minnesota with the help of two temporary assistants provided by the State, and the beginning of the month he left for Lansing where he will be occupied for the next two or three months in a similar analysis of the Michigan forest fire statistics. The Department of Conservation of Michigan is providing a man to help with this work.

Wackerman completed the field work in Michigan and returned to the office September 3. He secured in Michigan and Wisconsin 115 plots of well-stocked jack pine. In addition, he made 25 per cent cruises of a total of over two sections of jack pine in three different localities in Michigan, on which areas he made a detailed age class and stock density map in order to secure figures on the present volume and rate of growth of jack pine stands of good, medium and poor stocking. The cruises should also form the basis for working out reduction formulae to apply figures of yield for well-stocked stands to understocked stands. Three temporary assistants were furnished by the Department of Conservation in Michigan and one assistant by the Conservation Commission in Wisconsin to help on this project.

The field work on the planting project was completed by Kittredge the middle of the month, when he returned to the office. During the five months in the three States, he secured a total of 428 sample survival counts and height measurements, as well as detailed notes on the many other factors in as many plantations of forest trees between 4 and 20 years old. These sample measurements of approximately 90,000 individual trees should furnish the basis for worth while conclusions in regard to reforestation in the region.

As a result of his earlier field work with Anderson of the State Forest Service in Minnesota, Zon outlined a policy of handling the timber on State-owned lands.

The President of the University of Minnesota has issued from his office an effective little pamphlet, entitled "Forestry, A Public Question." This is to be distributed throughout the State and sent with personal letters from the President to a certain number of the influential lumbermen in the State. While the author of the contents of this pamphlet is not mentioned in it, it is understood that the Director of the Forest Experiment Station deserves a large part of the credit.

Dr. Schantz and Dr. Metcalf, both of the Bureau of Plant Industry, were visitors to the Station during the month.

CLOQUET FOREST EXPERIMENT STATION

Probstfield reports considerable progress in the field in the study of the rate of establishment of stands of second growth after cutting. One factor of considerable interest has been the fact that in many of the young stands of second growth considerable tamarack was found growing in the upland, while in mature stands tamarack is very seldom present. Probstfield reports that the indications are that the tamarack is suppressed and passes out as a factor in the stand at about the 25th year.

Seed extraction was started, but owing to the fact that the cones were still rather moist and green and did not open even with a temperature of 120 degrees for sixteen hours it was abandoned for the time being. Cones are still coming in and there are very nearly 500 bushels of Norway cones at the Station.

On September 4 the District Convention of the Rotary Clubs met at Cloquet and were entertained at the Experiment Station at a picnic dinner, after which they were taken around the Experiment Station and shown the nurseries, the planting plots and the thinning plots. Everybody seemed to be very much interested in the work that was being done here. On August 29, Hansen spoke for the Duluth Y.M.C.A. camp at Sturgeon Lake.

A small exhibit was prepared for the Fall Festival at Cloquet, showing the character of the size of jack pine and popple logs usable for butter boxes and egg cases. A statement was prepared showing the amount of timber that was used annually, together with the acreage required to produce this. Inasmuch as this was a farmers' meeting, considerable interest was shown in the information contained in the exhibit. It is interesting to note that one of the units of the Farm Bureau at this festival had as a centerpiece for their exhibit a miniature woodlot with the sign stating that they believed in forest protection and in farm woodlots and windbreaks and that they supported forestry amendment Number 4. This is no doubt traceable directly to the Farmers' Meeting which was held here on June 29.

The region of the Experiment Station was visited by a terrific wind storm on Sunday, September 21. A 60-mile wind from the northwest sprang up in the early afternoon and continued to blow until late at night, accompanied by very heavy rainfall. Considering the velocity of the wind, very little damage was done to any of the stands on the Station area. As nearly as could be determined, only three trees of any considerable size were windthrown.

NORTHEASTERN FOREST EXPERIMENT STATION

The most important event of the month was the meeting of the Northeastern Forest Research Council at Petersham, Massachusetts, on September 4 and 5. Since the previous meeting the membership of the council has been increased by the appointment by Secretary Wallace of Forrest H. Colby, formerly Forest Commissioner of Maine and now president of the Kennebec Valley Protective Association and manager of the Woodlands Department of S. D. Warren Company. All but three of the council members were present. It had been the intention to make the meeting a joint one between the council and the subcommittee for the Northeastern States of the Advisory Committee of the Pulp and Paper Industry to the Department of Agriculture, but none of the subcommittee members were able to attend with the exception of the chairman, Mr. G. W. Sisson, Jr., who is also a member of the council.

An entire day was devoted to an inspection of the Harvard Forest under the able guidance of Professor Fisher. The members of the council seemed greatly impressed with the results being secured there. Two evening sessions were held at which considerable business was transacted. Arrangements were made for the careful study of the program of investigations now under way in the region, with the idea of bringing about better coordination and of encouraging further investigations, particularly in those fields in which the present program is weak. Information was requested of the Secretary of Agriculture as to the appropriations being requested by the Department for various forest activities in the Northeastern States, and the previous requests that forest entomologists and forest pathologists be placed at the Northeastern Forest Experiment Station and that an immediate survey be undertaken to determine the possibility of controlling the European pine shoot moth were reaffirmed. Arrangements were also made to call the attention of the governors, State foresters, and presidents of State universities and agricultural colleges of the various Northeastern States to the passage of the Clarke Act; to urge the passage of such legislation and appropriations as may be necessary to make this act fully effective in the State concerned; to stress the need for additional forest research by State organizations, with adequate appropriations for such work; and to offer the assistance of the council in securing desirable legislation and in developing State activities along these and related lines. Other matters on which action was taken included the conduct of investigations by administrative officers, the expansion of fire studies, particularly as regards the relation between weather and fire hazard, and the activities of the International Education Board. Arrangements were made to hold the next meeting in February, probably at New Haven, Connecticut.

Mimeographed copes of the census of forest investigations under way in the Northeast were finally received from Washington and distributed to various interested parties. Another edition has been ordered. Distribution was also made of a mimeographed list of places of interest to foresters in New England, compiled in cooperation between the Experiment Station and the New England Section of the Society of American Foresters.

A visit from Donald Bruce of the Washington office was much appreciated. Bruce was able to get into the field with each of the men except Behre, whom he saw in the office, and made suggestions that will be helpful in handling the various projects. The laying out of the sample plots on the Cherry Mountain Timber Sale on the White Mountain National Forest was finally completed after having consumed considerably more time than was originally anticipated. The great difficulty in work of this kind is to decide just what details should be covered and just what data will be needed in interpreting the results secured on the plots. The relative value of a few intensive plots and of a larger number of less intensive ones still seems to be a subject for lively debate.

Some progress was made in arranging for fire weather forecasts by the Weather Bureau to the State foresters in the region, but the actual initiation of the work, except in Massachusetts and Connecticut, where it is now under way, will have to be postponed until next spring. At the request of the Bureau of Entomology a small amount of cleaning was done on two out of the plots established in connection with the study of the control of the gypsy moth by forest management.

Field Assistant Gemmer, who was injured last month by a thirty-foot fall out of a tree on which he was taking increment borings, remained incapacitated during the month. Careful examinations show that his spine was fractured, and that while he will in all probability completely recover it may be several months before he is entirely well. His place is being taken by Richard D. Stevens, who is a recent graduate of the Forestry Department of the University of New Hampshire.

Meyer seems to be laboring under an unlucky star this summer. Last month his camp was ransacked and considerable material stolen, including chiefly Government food and personal articles belonging to Field Assistants Stickel and Wilson. No trace of the thieves has been obtained. Earlier in the season the notorious station Hupmobile which he was driving was run into by an Italian and badly damaged. Efforts to secure settlement from the Italian have so far proved unavailing, and it seems likely that the case will have to be referred to the Attorney General for the institution of legal proceedings.

Dana spoke at the annual meeting of the Society for the Protection of New Hampshire Forests at Peterboro, New Hampshire, on September 2. The latter part of the month he visited Dr. Wickliffe Rose, president of the International Education Board, in New York and Dr. William Crocker, Director of the Boyce Thompson Institute for Plant Research at Yonkers. As a result of the interview with Dr. Rose plans are being made for a small and informal conference on October 27 to consider the formulation of specific recommendations to the Board and the organization of the machinery by which future contacts with the Board may be maintained. The Thompson Institute is a privately endowed organization with resources of some five or six million dollars, and is marvelously equipped with the latest and most effective laboratory and greenhouse facilities. Dr.

Crocker exhibited much interest in forestry and expressed the belief that thoroughgoing plant research is particularly needed in the field of forestry. It is probable that the Thompson Institute will gradually include forest problems in its activities, but he stressed the need for a similar adequately endowed institute which would devote its entire attention to forestry. Among other things he stated that one of Colonel Thompson's chief objects in establishing the present institute was to set an example which other rich men might follow.

PACIFIC NORTHWEST FOREST EXPERIMENT STATION

The Douglas fir yield study crew has continued measuring temporary sample plots of even-aged timber on various sites. Nine separate tracts were worked this month totaling about sixty-five plots. McArdle also ran 50 chains of empirical strip cruise and remeasured the two sets of permanent sample plots in the Wind River Valley. He found that a Forest Service road had been slashed this spring through the middle of two of the three plots on one area, rendering them useless for further study. This is another instance of the necessity for safeguarding permanent plots in every possible way to prevent their loss through timber sales, road construction, special uses, back firing, etc. This crew established one new plot in the vicinity of those lost. The last of the month this crew moved south into Oregon and will work southward in the valleys and foothills until field work becomes impossible. Field Assistant Mowat left the party September 15 to take up his work as instructor in forestry at O. A. C. His place was taken by Field Assistant Marshall, by transfer from the Wind River Branch, who left October 1 for a post graduate course at the Harvard Forest. L. R. Barrett (Michigan 1924) will join this party as soon as released from his place as lookout on the Whitman.

At Wind River Isaac has established a permanent belt transect 2½ miles long and 6.6 feet wide across interesting portions of the recent cut-over land to study reseeding after various classes of burns. Some thinning plots in reproduction have also been reexamined. He made a ten-day trip to the Snoqualmie Forest to brush out and remeasure the Douglas fir seed study plantations. Some stops at logging operations were made en route.

The hydroelectric plant at Wind River which is now nearing completion has taken some of Simson's time, which has otherwise been devoted chiefly to fire weather and static observations. He visited a big fire near Carlton, Oregon, which was ideally situated from a research standpoint. Data were collected on the effect of atmospheric humidity upon the inflammability of various materials. Some experiments in fire fighting were made. The State and association men who were working on the fire were keen to make practical application of the instrumental observations and gave excellent cooperation.

The Director spent about a week in the Lower Columbia River region, visiting some lumbering operations and considering the suitability of some areas as centers for the field work in the spruce-hemlock type or "fog-belt" region. The thing that interested him most on this trip was the "re-logging" being practiced by the Crown-Willamette Paper Company. An area logged a few months ago with big donkeys and the high-lead system they are now going over again with a Lidgerwood skidder and getting 10,000 feet per acre of small hemlock trees, tops, and short or small pieces of spruce and hemlock. Six pieces are brought in at a time. A peavy is used by the top loader, a rare sight in this region. Many of the pieces are only 8 inches in the top, some even smaller. On the average 30 to 35

pieces make up a car. This salvage material is rafted and goes to the paper mills where it makes as good paper as the main cutting of big timber, in fact it has advantages from the paper-maker's viewpoint. The areas so re-logged are much improved from a fire protective standpoint. At one of the company's other camps they have installed a Lidgerwood skidder which is taking both the large and the small logs, and leaving the ground in as clean condition as on the re-logged ground. It is this company's present tendency to get away from the donkey-high-lead system in favor of sky line skidders, because of the possibilities of better utilization by the latter method. There is great significance in this tendency from the fire prevention and forestry standpoint.

The reports on nineteen military reservations, mostly abandoned ones, were examined, and one was examined in the field, to see if these areas had such value for experiment station use as to warrant their retention in Federal ownership, and transfer to the Forest Service.

Mr. Clapp spent September 21 in Portland en route from District 4 to District 5. R. C. St. Clair, Assistant Chief Forester of British Columbia, called to discuss our research program, and to tell of the work underway in British Columbia.

PRIEST RIVER FOREST EXPERIMENT STATION

J. A. Larsen has just accepted a teaching position in the forestry department of the Iowa Agricultural College at Ames. His resignation will take effect October 8. He leaves voluntarily for a position which he feels offers a useful and congenial field of endeavor and a better future financially. He regrets very much leaving the Priest River Station and his studies in the western white pine type with which he has been connected nearly 13 years. Larsen's work has added very considerably to our fundamental knowledge of silviculture in this type. His most important contribution to silviculture, perhaps, is that on the factors influencing the reproduction of white pine under various conditions of this very complex type in northern Idaho. Although some of the results of his work have been published in the technical journals, there is still much of his work in the form of manuscripts in preparation for publication. Two manuscripts on white pine reproduction after logging and after forest fires were recently submitted to the Journal of Agricultural Research. Several longer reports on silvicultural practice in District 1 and on long-term instrumental studies of types and physiological factors of sites remain to be published. With these accomplishments in silvicultural research, and a long contact with methods of cutting and slash disposal in white pine timber sales, Larsen will be richly endowed for his work of teaching silviculture. He leaves the Priest River Station with our very best wishes in his new field of work.

Upon Weidman's return from eastern Montana early in September, he spent 10 days on leave and the remainder of the month in the office. Shortly after the first of October he will leave for field work and will be out until about November 10. The first work will be to make the 10-year reexamination of the yellow pine sample plots on the Whitman Forest in cooperation with members of the Pacific Northwest Station, who will thereafter take over the responsibility for this project. Following this, Weidman will be engaged in various work at the Priest River field station, chiefly the reexamination and enlargement of a thinning project involving two series of plots now 5 and 10 years old.

During the first part of the month Gisborne spent a week with R. N. Cunningham, District 1 Weeks Law officer, studying fire conditions on private holdings covered by the Coeur d'Alene and Potlatch fire protective associations. One fairly large going fire was studied and the rate of spread observed, as affected by relative humidity, temperature, wind, and duff moisture. It had been hoped to watch the broadcast burning of slash from 70 million feet of timber, but for two days following a rain the logging superintendent decided that conditions were too wet. The next day, when conditions were dry enough to suit the superintendent, they were too dry to suit the fire association's firewarden and the slash was not burned. It is interesting to note that this logging superintendent's ideas of good burning conditions are such that 70 million feet of slash can be burned by 10 men in not over two or three days. This is a rate of disposal of about $2\frac{1}{2}$ million feet per man per day. Excellent work in burning well-piled yellow pine slash on timber sales is ordinarily done at the rate of 1/4 million feet a day. With a remaining stand of about 200 trees per acre, 4 to 20 inches in diameter, such as is found in this part of the white pine type, it is not surprising that the prevailing broadcast method of slash disposal, such as this and other logging superintendents practice, produces havoc on the cut-over areas in northern Idaho. As a result of this trip, Gisborne and Cunningham have in mind cooperating on experimental slash burning next fall. The object of the proposed work is to show the lumbermen, by actual plots on their own land, the difference in results of careful burning when the slash in its natural accumulations will burn with little damage to remaining trees, as compared to the very cheap and devastating burning when the debris is exceedingly dry. The object will also be to study the ease of ignition, rate of spread, and difficulty of control of fire in different materials according to prevailing conditions and the moisture contents of each of the important fuels.

Following the termination of the fire season by the rains in the middle of September, Gisborne finished the work at the field station and returned to Missoula September 18. He is now engaged in the compilation of his results for a progress report covering the fire studies to date.

At the beginning of the month Haig transferred his efforts from the white pine yield study to Larsen's study of reproduction after fires. He was engaged in this in the neighborhood of Wallace, Idaho, to the middle of the month, working on double burns of 1889-1910 and 1870-1900, the object in this case being to determine how thoroughly natural regeneration takes place when forests only 20 and 30 years old are killed by fire. Since the middle of the month Haig has been studying old timber sale cuttings in the western part of the Coeur d'Alene Forest for the purpose of learning the results of various cutting practices, both with regard to reproduction and the remaining trees.

Wahlenberg's report for September shows that he has been devoting most of his attention to fall examinations of plantations and nursery seed beds. Stakes to be used as individual plant labels were marked and set on sites selected for new plantations this fall. Although conditions were very dry early in September, the fall rains had started by the third week of the month, and with 0.62 inches of rainfall in the vicinity of Savenac Nursery the fall planting work was about to begin.

From the field station comes a report from Kempff of a variety of work for the month of September. A timber sale appraisal was made for the compartment which is proposed for cutting the coming winter. The cedar pole sale of last winter, which could not be completed because of the disappearance of snow in January, is now resuming operations preparatory for sleigh hauling as soon as snow comes this fall. Slash burning on last year's timber sale is now in full swing. Considerable time was given to supervision on the Benton Creek road which is now nearing completion. Fortunately, an increase of $1500 has been secured to finish it this fall. Time was also taken up variously with fire cooperation with the local district ranger, with office work on the going projects, with visitors, and with the continuation of Gisborne's measurements during his absence.

Messrs. Huppke and Eldridge, of the Office of Blister Rust Control, spent about a week at the field station experimenting with chemical methods of Ribes eradication. Various strong chemicals were employed, particularly on the white stemmed gooseberry, Grossularia inermis, which now seems to be considered the most susceptible alternate host of the white pine blister rust.

SOUTHERN FOREST EXPERIMENT STATION

General

Mr. Forbes spent the first two weeks of the month in a tour of several States in our territory, including Florida, Georgia, South Carolina, North Carolina, and Alabama. During the first part of the trip he was accompanied by Mr. Wyman. They visited several naval stores men in Jacksonville and vicinity to get their opinions regarding scope and character of naval stores tests to be carried on next year. Most of the men thought it would be best to concentrate on a few points and investigate these thoroughly. Forbes and Wyman then went to Savannah and discussed turpentining plans with the naval stores men there. Mr. George B. Shingler, Jr., of the Bureau of Chemistry, Savannah, has promised to send us a memorandum outlining his own as well as Mr. H. L. Kayton's ideas. From Savannah Wyman went to Brunswick for one day and thence returned to Florida. Forbes continued his trip through the States mentioned above, during which he discussed with persons interested the new program of the station and the organization of an advisory board. On this trip Forbes visited several cities and conferred with quite a number of persons with a view to determine the most logical center for the headquarters station.

Mr. Shingler met Forbes and Wyman at Starke on the third and conferred with them on the naval stores program.

Several temporary appointments were made. Mr. Harry S. Wiswell, Field Assistant, began work with us on September 26. He went direct to Starke, where he will help Wyman mainly on the naval stores work. Mr. J. M. Tinker joined us on the 30th, coming to New Orleans. Miss Camelia A. North was appointed for two months as stenographer and typewriter.

Late in the month Wyman met Mr. Don P. Johnston and talked over with him the naval stores work; he also saw Mr. J. G. Pace of the Escambia Land and Manufacturing Company, Pensacola, who promised to look up locations for our work. Wyman also conferred with others interested in naval stores work.

Hadley visited the Georgia School of Forestry and discussed forestry matters, chief of which was the work on artificial reforestation under way in that State and other southeastern States. Mr. Barrett expressed a feeling that some kind of bulletin or circular on methods of nursery and planting practice was greatly needed.

Hadley also visited the military reservation at Fort Benning and the city of Columbus, Georgia. Fort Benning was visited with the purpose of ascertaining its possibilities for research work, and Columbus as a headquarters city.

From Georgia Hadley went to spend a week at Starke with Wyman on his naval stores work.

Messrs. Hine and Shivery spent the first three weeks of the month taking slash pine measurements in Florida and Georgia. They separated toward the end of the month, Hine coming to New Orleans and Shivery going to Starke to assist Wyman.

Professor R. A. Studhalter, Sul Ross Teachers' College, Alpine, Texas, visited us at New Orleans. We directed him to Urania and went over the pathological situation in the South as far as we know it. Ranger Norman Core of the Louisiana Department of Conservation was another visitor. Mr. Core gave us data on locations for growth and fire studies.

Protection

Fire. Forbes' article entitled "Forest Fires in the Southern Coastal Plain" was typed and will be forwarded to Washington as soon as he has the opportunity to look it over. The Director reviewed Hine's article entitled "Hogs, Fire, and Disease versus Longleaf Pine."

Grazing. During the two last days of the month special fire protection had to be given the Tate Pasture, McNeill, on account of the high winds and drought on both days.

Forbes reviewed Hadley's article entitled "Results of Sowing Carpet Grass and Loblolly Pine Seed on Steam-skidded Cut-over Land." This is to be published in several of the southern lumber trade journals.

Forbes also reviewed the data Hadley had worked up on the Pa-1, McNeill, project.

Management

Hine's "Report on the Establishment of Natural Reproduction Plots in Loblolly and Shortleaf Pines and Mixed Hardwoods" was again reviewed. This article is now in final shape to be submitted to Washington.

Measurements

During their three weeks field trip in Florida and Georgia, Hine and Shivery measured 34 slash pine stands. Somewhat over 1500 miles were travelled in locating these. Hine and Shivery are of the opinion that from 85 to 90 per cent of the trees large enough for turpentining are now being bled, or have been worked and abandoned. The measurements were taken almost altogether in stands of the 30 and 40-year age classes; stands over 45 years are almost lacking. Slash pine, though it requires more moisture than the other southern pines, grows best where it receives

plenty of water and where drainage is good. An excess or deficiency of moisture results in slower height growth in this species. It appears from a very few measurements that where slash and loblolly grow together on a particular site they make about the same progress in both height and diameter.

Naval Stores

Wyman and Hadley supervised the weighing and dipping of gum on the Powell tract. They also supervised the hacking of the Sampson Lake tract and took some individual tree descriptions on this area. Together they had a thorough and exhaustive discussion of the naval stores projects, with particular reference to methods used by Wyman.

During September Wyman completed the following articles: "Hints to Farmers on Leasing Timber for Turpentine Orcharding, Height of Face, and Size of Hack" and "How Deep Should I Chip My Timber?" These are part of a series of articles for publication in the Naval Stores Review.

Wiswell made a trip to Sampson City to see stilling methods at R. H. Smith's still.

Hine spent a day checking the figures in Wyman's report on the slash pine tests for 1923. From measurements made on sample plots laid out in Wyman's slash pine experimental area, it was found that the trees are on Site I land. A large portion of the area compares very well in basal area, number of trees, and volume with the average of the areas selected as sample plots in the slash pine growth study.

Forestation

The Director reviewed Hadley's reports on his nursery projects.

DISTRICT 5 - CALIFORNIA DISTRICT

The month of September, like the preceding months, was seriously broken into by fire work for both Show and Dunning. Munns and Show spent about ten days on the San Gabriel fire on the Angeles Forest, while Dunning was again engaged on the Tahoe Forest. Dunning made considerable progress in remeasuring a large series of thinning and yield plots in pure even-aged yellow pine stands on the Plumas Forest. This work was made possible by borrowing Forest Assistant Kellogg from the Shasta Forest. It is anticipated that this job will be completed early in October.

Show's work for the month consisted largely of the revision of the redwood public requirements and desirable practice reports and work on minor projects. In addition, some time was put on the circular covering the relation of logging to silvicultural practice in the pine region.

Mr. Clapp arrived near the end of the month and several profitable days were spent with him going over work of the year.

LIBRARY

In September the librarian loaned 798 books and periodicals, and 125 members of the Service and others consulted the library in person. The number of books and periodicals indexed for the catalogue last month was 245.

MANUSCRIPT NEWS NOTES

Appalachian

"The Fire Stopper," F. W. Haasis (American Forests and Forest Life.)

"Appalachian Forest Experiment Station." (Circular describing work of Station.)

"Forestry and Forest Investigations in the Southern Appalachians." E. H. Frothingham. (Read before the Rotary Club, Asheville, September 18, 1924.)

Fremont

"A Study of Douglas Fir Reproduction Under Various Cutting Methods." Jacob Roesner, Jr. (Page proof, Jour. Agr. Res.)

Priest River

"Some Factors Affecting Reproduction After Logging." J. A. Larsen. (Page proof, Journal of Agricultural Research.)

Southern

"Sowing Carpet Grass on Cut-over Lands." E. W. Hadley. (Southern Lumber Trade Journals.)

"Longleaf Pine," W. R. Mattoon. (Dept. Bulletin 1061. Revision prepared by the Southern Experiment Station.)

District 4

"Forest Planting in the Intermountain Region," C. F. Korstian and F. S. Baker. (Galley proof, Journal Agric. Research.)

"Aspen in the Central Rocky Mountain Region." F. S. Baker. (Galley proof, Dept. Bul.)

In Print

Map of Natural Vegetation. Zon and Shantz.

Kempff, G. Some Results of Winter Slash Disposal.
The Timberman, August, 1924.

Baker, F. S. Floods in Utah. The Forestry Kaimim, 1924.

McCarthy, E. F. "The Record the Tree Keeps." Woodturning, August, 1924.

Frothingham, E. H. "Forestry and Forest Investigations in the Southern Appalachians." Asheville (Sunday) Citizen, September 21, 1924.